

Claims

- [c1] A method for obtaining cine angiography images with a computed tomography (CT) scanner, comprising:
- monitoring a cardiac cycle of a patient;
 - selecting a trigger point along said cardiac cycle;
 - when said cardiac cycle of the patient reaches said trigger point, initiating a CT scan of the patient;
 - performing at least two CT scans of the patient during a time period over two or more cardiac cycles; and
 - constructing a cine angiography image from said at least two CT scans.
- [c2] The method of claim 1, wherein said performing step obtains said at least two CT scans during a single cardiac cycle.
- [c3] The method of claim 1, wherein said performing step obtains said at least two CT scans consecutively and beginning at different points within said time period.
- [c4] The method of claim 1, wherein said performing step performs a complete CT scan in no more than 100 milliseconds.
- [c5] The method of claim 1, further comprising sweeping an electron beam across a target ring to perform said at least two CT scans.
- [c6] The method of claim 1, utilizing an x-ray fan beam to obtain said at least two CT scans.
- [c7] The method of claim 1, further comprising combining a series of three dimensional images into a three dimensional cine loop based on said at least two CT scans.
- [c8] The method of claim 1, further comprising displaying a series of moving three dimensional images based on said at least two CT scans.
- [c9] The method of claim 1, wherein said initiating step includes prospective gating based on said cardiac cycle of the patient.

- [c10] The method of claim 1, further comprising moving the patient with respect to the CT scanner between or during CT scans.
- [c11] The method of claim 1, further comprising moving the patient with respect to the CT scanner during each of said at least two CT scans to obtain spiral scans.
- [c12] The method of claim 1, wherein said performing step obtains multiple parallel CT slices from separate parallel rows of detectors in the CT scanner.
- [c13] The method of claim 1, wherein said performing step obtains one image for each CT scan.
- [c14] A method for obtaining cine loop images with a computed tomography (CT) scanner, comprising:
 - monitoring a cardiac cycle of a patient;
 - selecting a trigger point along said cardiac cycle;
 - when said cardiac cycle of the patient reaches said trigger point, initiating a CT scan of the patient;
 - sweeping an electron beam along a target to generate an x-ray fan beam to perform at least two CT scans; and
 - constructing a cine angiography image from said at least two CT scans.
- [c15] The method of claim 14, wherein said sweeping step obtains said at least two CT scans during a single cardiac cycle.
- [c16] The method of claim 14, wherein said sweeping step obtains said at least two CT scans consecutively and beginning at different points within a time period of two or more cardiac cycles.
- [c17] The method of claim 14, wherein said sweeping step performs a complete CT scan in no more than 100 milliseconds.
- [c18] The method of claim 14, further comprising combining a series of three dimensional images into a three dimensional cine loop based on said at least two CT scans.
- [c19] The method of claim 14, further comprising displaying a series of moving three

dimensional images based on said at least two CT scans.

[c20] The method of claim 14, wherein said initiating step includes prospective gating based on said cardiac cycle of the patient.

[c21] The method of claim 14, further comprising moving the patient with respect to the CT scanner between or during CT scans.

[c22] The method of claim 14, further comprising moving the patient with respect to the CT scanner during each of said at least two CT scans to obtain spiral scans.

[c23] The method of claim 14, wherein said sweeping step obtains multiple parallel CT slices from separate parallel rows of detectors in the CT scanner.

[c24] The method of claim 14, further comprising performing at least two CT scans of the patient during a time period over two or more cardiac cycles.

[c25] A method for generating cine angiography images, comprising:
monitoring a cardiac cycle of a patient;
selecting a trigger point along said cardiac cycle;
when said cardiac cycle of the patient reaches said trigger point, initiating a computed tomography (CT) scan of the patient;
performing at least two CT scans of the patient during a cardiac cycle;
constructing a cine angiography image from said at least two CT scans;
and
moving the patient with respect to a CT scanner between or during CT scans.

[c26] The method of claim 25, wherein said performing step obtains said at least two CT scans during a single cardiac cycle.

[c27] The method of claim 25, wherein said performing step obtains said at least two CT scans consecutively and beginning at different points within a time period of two or more cardiac cycles.

[c28] The method of claim 25, wherein said performing step performs a complete CT scan in no more than 100 milliseconds.

- [c29] The method of claim 25, further comprising combining a series of three dimensional images into a three dimensional cine loop based on said at least two CT scans.
- [c30] The method of claim 25, further comprising displaying a series of moving three dimensional images based on said at least two CT scans.
- [c31] The method of claim 25, wherein said initiating step includes prospective gating based on said cardiac cycle of the patient.
- [c32] The method of claim 25, further comprising moving the patient with respect to the CT scanner during each of said at least two CT scans to obtain spiral scans.
- [c33] The method of claim 25, wherein said performing step obtains multiple parallel CT slices from separate parallel rows of detectors in the CT scanner.